Fenelon Falls Drinking Water System

2024 Annual Water Report

Drinking Water System Number: 210000327

Drinking Water System Operating Authorities: City of Kawartha Lakes and Ontario Clean Water Agency

Drinking Water System Category: Large Municipal Residential

Reporting Period: January 1 – December 31, 2024

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Annual Drinking Water Report
City of Kawartha Lakes

Kawartha Lakes
Jump In

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2024 Annual Drinking Water System Summary Report

General Information

The City of Kawartha Lakes prepares a report summarizing system operation and water quality for every municipal drinking water system annually. This report has been prepared to satisfy the annual reporting requirements in O. Reg. 170/03 Section 11 and Schedule 22. The annual reports will be available to residents at the City of Kawartha Lakes Public Works Administration Office by appointment and the City's website. Notification that the reports are available free of charge will be made on the City of Kawartha Lakes website. The City of Kawartha Lakes Public Works Administration Office is located at 322 Kent Street West in Lindsay, Ontario.

This system does not serve more than 10,000 residences.

Drinking Water System Number: 210000327
Drinking Water System Name: Fenelon Falls Drinking Water System
Drinking Water System Owner: City of Kawartha Lakes
Drinking Water System Category: Large Municipal Residential
Reporting Period: January 1, 2024 – December 31, 2024

Compliance Summary

Table 1. Drinking Water Compliance Summary

	Number of Events	Date	Details
Ministry (MECP) Inspections	2	February 14, 2024 January 22, 2025	2023/2024 Unannounced Focused Inspection – Final Inspection Rating 100% 2024/2025 Announced Detailed Inspection completed – Final Inspection Rating not received at time of issuance of report.

	Number of Events	Date	Details
Adverse Water Quality Incidents (AWQIs)	1	December 2, 2024	Filter 2 – Filter Performance criteria not met for November 2024
Non-Compliances	0		
Boil Water Advisories	0		
Health and Safety	0		

Drinking Water System Description

The Fenelon Falls drinking water system is a large municipal residential drinking water system that serves the Village of Fenelon Falls, Ontario. The drinking water system is classified as a Class II Water Treatment and Class I Water Distribution subsystems under O. Reg. 128/04

Source Water

The water supply for the system comes from Cameron Lake, which is a surface water source.

Water Treatment Facility

The Fenelon Falls drinking water system consists of pre-treatment for Zebra Mussel control, followed by coagulation, flocculation, membrane filtration and primary disinfection using UV disinfection followed by sodium hypochlorite and chloramination for secondary disinfection. Treated water is directed to one (1) clearwell.

A diesel generator is onsite to provide standby power to the water treatment facility in the event of a power failure.

Distribution System

The distribution system has approximately eighteen (18) kilometers of watermains and one elevated standpipe with a total storage capacity of approximately 2,450 m^3. The standpipe provides pressure control, pressure monitoring, system storage and firefighting flows.The distribution system is rated for fire protection. The watermains in the Fenelon Falls Distribution System are of various watermain material primarily being Asbestos Concrete, but also includes PVC, Ductile Iron and welded steel pipe.

Table 2. Treatment Chemicals Used

Chemical Name	Use	Supplier
Sodium Hypochlorite	Disinfection	Brenntag UnivarSolutions

Chemical Name	Use	Supplier
Polyaluminum Chloride	Coagulation	Kemira
Ammonium Sulphate	Secondary Disinfection (Chloramination)	UnivarSolutions

Summary of Non-Compliance

Adverse Water Quality Incidents

Table 3. Adverse Water Quality Incidents

Date	AWQI #	Location	Problem	Details	Legislation	Corrective Action Taken
2024 12 02	166991	Filtration	Monthly filter effluent turbidity <=0.1 NTU performance criteria of 99% not met.	98.9% Filter 2 – filter replacement induced air, affected flow to meter	O. Reg. 170/03	Air removed and flow adjusted.

Non-Compliance

There were no non-compliances reported during the reporting period.

Non-Compliance Identified in a Ministry Inspection

There were no non-compliances identified in a Ministry Inspection during this period.

Flows

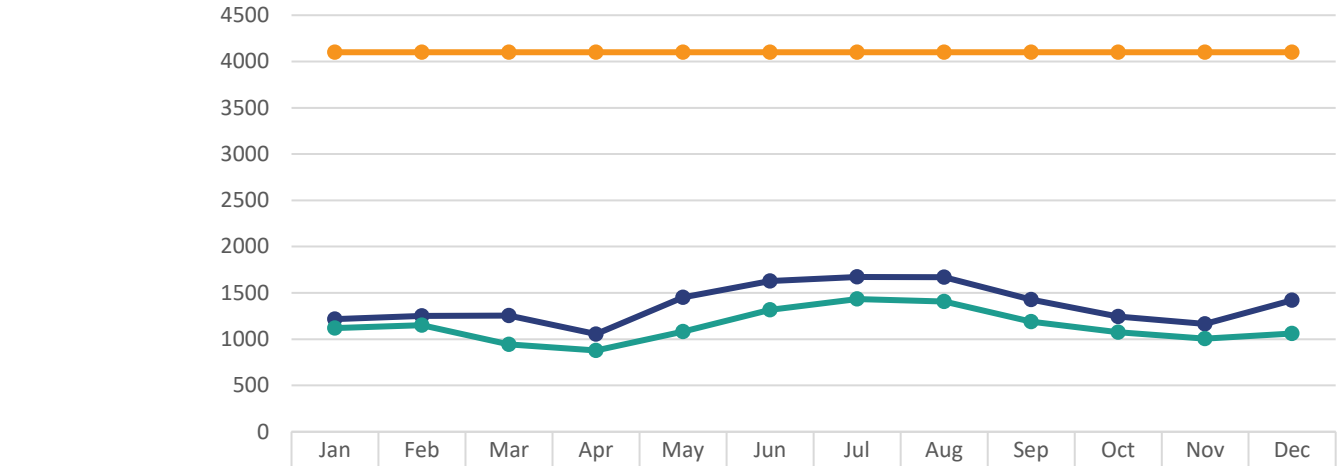
The Fenelon Falls Drinking Water System is operating on average under half the rated capacity. The rated capacity of the system (treated water flows) is 4,100 m^3/day.

Raw Water Flows

The raw water flows are regulated under the Permit to Take Water. Raw flow data for 2024 was submitted to the Ministry of Environment, Conservation and Parks (MECP) electronically under

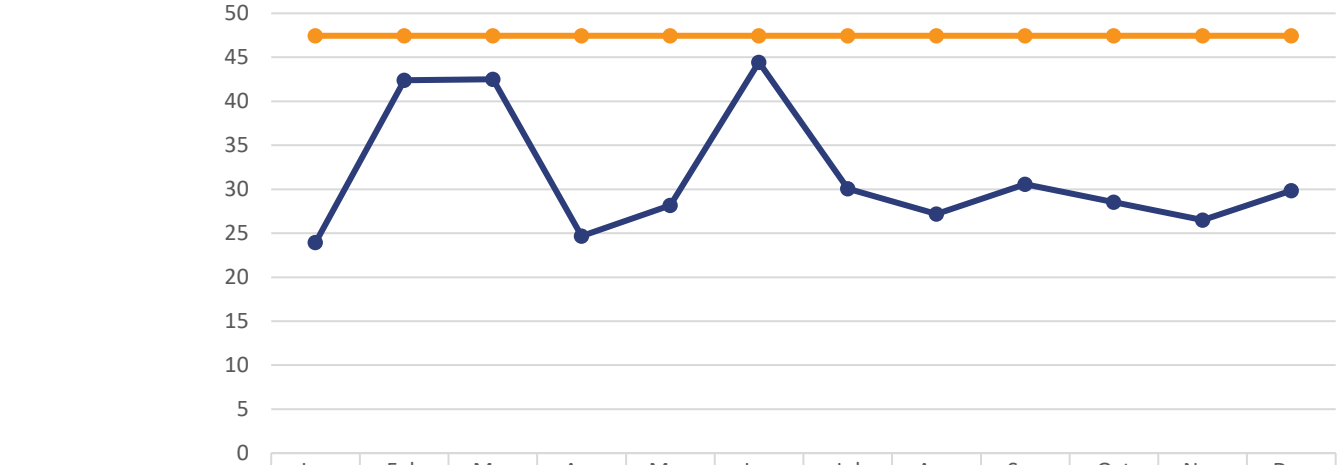
permit #5830-AQFGZR. The confirmation of the data that was submitted is attached in Appendix A.

Graph 1. Total Monthly Flows (m³/d) – Cameron Lake (Max Allowable PTTW)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (m³/d)	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
Max Flow (m³/d)	1218	1250	1256	1056	1452	1627	1672	1671	1428	1244	1164	1422
Avg (m³/d)	1121	1151	943	878	1083	1316	1433	1406	1191	1076	1006	1062

Graph 2. Monthly Rated Flows (L/s) – Cameron Lake (Max Allowable Rate PTTW)

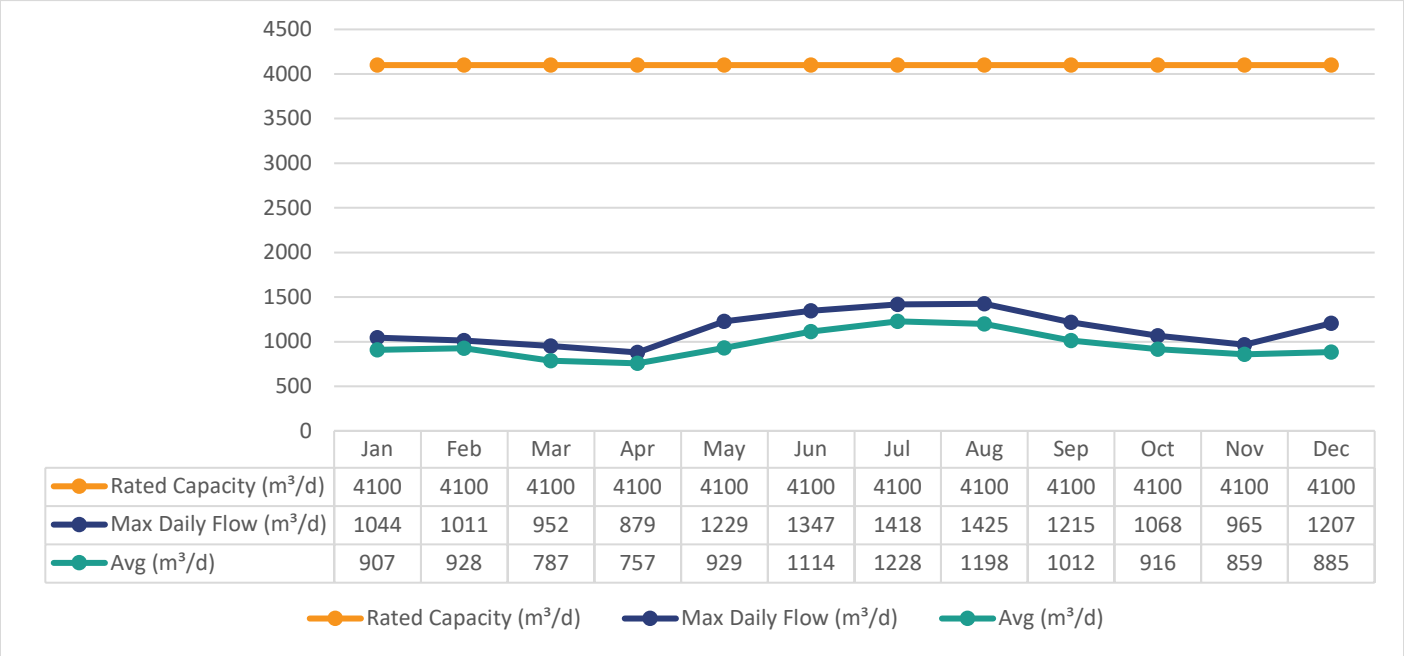


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max Allowable (L/s)	47.45	47.45	47.45	47.45	47.45	47.45	47.45	47.45	47.45	47.45	47.45	47.45
Max Rate (L/s)	23.94	42.41	42.50	24.67	28.16	44.45	30.06	27.19	30.58	28.53	26.50	29.84

Treated Water Flows

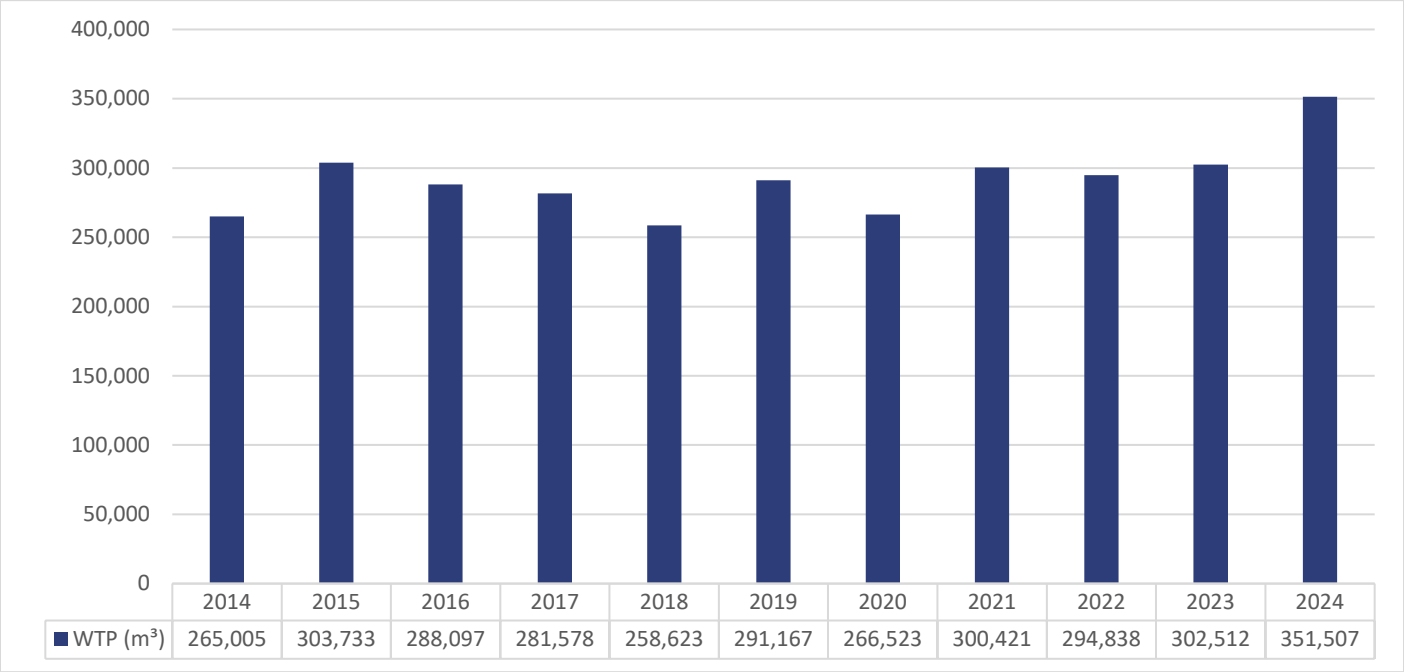
The Treated Water flows are regulated under the Municipal Drinking Water Licence 141-104.

Graph 3. Monthly Rated Flows (m³/d) – Rated Capacity - MDWL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rated Capacity (m³/d)	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100	4100
Max Daily Flow (m³/d)	1044	1011	952	879	1229	1347	1418	1425	1215	1068	965	1207
Avg (m³/d)	907	928	787	757	929	1114	1228	1198	1012	916	859	885

Graph 4. Annual Total Flow Comparison (m³)



	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
WTP (m³)	265,005	303,733	288,097	281,578	258,623	291,167	266,523	300,421	294,838	302,512	351,507

Regulatory Sample Results Summary

Microbiological Testing

Table 4. Microbiological Test Results

	No. of Samples Collected	Range of E. Coli Results	Range of E. Coli Results	Range of Total Coliform Results	Range of Total Coliform Results	Range of HPC Results	Range of HPC Results
		Min	Max	Min	Max	Min	Max
Raw	53	0	5	2	83	N/A	N/A
Treated	53	0	0	0	0	0	2
Distribution	159	0	0	0	0	0	22

OG = Overgrowth
HPC = Heterotrophic Plate Count

Operational Testing

Table 5. Operational Test Results

Parameter	Number of Samples Collected	Range of Results Minimum	Range of Results Maximum
Turbidity Filter 1 (NTU)	8760	0.00	2.00
Turbidity Filter 2 (NTU)	8760	0.00	2.00
Chlorine	8760	0.21	3.74
Fluoride (If the DWS provides fluoridation)	N/A	N/A	N/A

Note: Record the unit of measurement if it is **not** milligrams per litre.
Note: For continuous monitors 8760 is used as the number of samples. Spikes recorded by online instrumentation were a result of air bubbles and various maintenance/calibration activities. All spikes are reviewed for compliance with O. Reg. 170/03.

Inorganic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. Sodium and Fluoride are required to be tested every five years. Nitrate and Nitrate are tested quarterly and the metals are tested annually as required under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be samples quarterly. Based on the latest test results no additional testing is required.

Table 6. Inorganic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Treated Water					
Antimony	2024 01 10	<MDL 0.6	µg/L	6.0	No
Arsenic	2024 01 10	<MDL 0.2	µg/L	10.0	No
Barium	2024 01 10	20.3	µg/L	1000.0	No
Boron	2024 01 10	6.0	µg/L	5000.0	No
Cadmium	2024 01 10	<MDL 0.003	µg/L	5.0	No
Chromium	2024 01 10	0.08	µg/L	50.0	No
Mercury	2024 01 10	<MDL 0.01	µg/L	1.0	No
Selenium	2024 01 10	<MDL 0.04	µg/L	50.0	No
Uranium	2024 01 10	0.056	µg/L	20.0	No
Additional Inorganics					
Fluoride	2023 01 04	<MDL 0.06	mg/L	1.5	No
Nitrite	2024 01 10	0.003	mg/L	1.0	No
Nitrite	2024 04 05	<MDL 0.003	mg/L	1.0	No
Nitrite	2024 07 03	<MDL 0.003	mg/L	1.0	No
Nitrite	2024 10 15	<MDL 0.003	mg/L	1.0	No
Nitrate	2024 01 10	0.057	mg/L	10.0	No
Nitrate	2024 04 05	0.09	mg/L	10.0	No
Nitrate	2024 07 03	0.043	mg/L	10.0	No
Nitrate	2024 10 15	0.024	mg/L	10.0	No
Sodium	2023 01 04	7.52	mg/L	20*	No

MAC = Maximum Allowable Concentration as per O. Reg. 169/03
MDL = Method Detection Limit
*There is no "MAC" for Sodium. The aesthetic objective for sodium in drinking water is 200 mg/L. Sodium results exceeding 20 mg/L are to be reported to the Medical Officer of Health as per Schedule 16-3 (8) of O. Reg. 170/03.

Schedule 15 Sampling (Lead)

The Schedule 15 sampling is required under O. Reg. 170/03. This system is under reduced sampling. Only distribution samples were collected, and no plumbing samples were collected.

Table 7. Schedule 15 Test Results (Lead)

	Number of Sampling Points	Number of Samples	Range of Results Minimum	Range of Results Maximum	MAC (µg/L)	Number of Exceedances
Alkalinity (mg/L)	2	4	44	55	N/A	N/A
pH	2	4	7.94	8.93	N/A	N/A
Lead (µg/L)	N/A	N/A	N/A	N/A	10.0	N/A

Organic Parameters

These parameters are tested as a requirement under O. Reg. 170/03. In the event any of the parameters listed in Schedule 23 or 24 of O. Reg. 170/03 exceed half of the maximum allowable concentration the parameter is required to be samples quarterly. Based on the latest test results no additional testing is required.

Table 8. Organic Parameters Test Results

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Treated Water					
Alachlor	2024 01 10	<MDL 0.02	µg/L	5.0	No
Atrazine + N-dealkylated metabolites	2024 01 10	<MDL 0.01	µg/L	5.0	No
Azinphos-methyl	2024 01 10	<MDL 0.05	µg/L	20.0	No
Benzene	2024 01 10	<MDL 0.32	µg/L	1.0	No
Benzo(a)pyrene	2024 01 10	<MDL 0.004	µg/L	0.01	No
Bromoxynil	2024 01 10	<MDL 0.33	µg/L	5.0	No
Carbaryl	2024 01 10	<MDL 0.05	µg/L	90.0	No
Carbofuran	2024 01 10	<MDL 0.01	µg/L	90.0	No
Carbon Tetrachloride	2024 01 10	<MDL 0.17	µg/L	2.0	No
Chlorpyrifos	2024 01 10	<MDL 0.02	µg/L	90.0	No
Diazinon	2024 01 10	<MDL 0.02	µg/L	20.0	No
Dicamba	2024 01 10	<MDL 0.2	µg/L	120.0	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
1,2-Dichlorobenzene	2024 01 10	<MDL 0.41	µg/L	200.0	No
1,4-Dichlorobenzene	2024 01 10	<MDL 0.36	µg/L	5.0	No
1,2-Dichloroethane	2024 01 10	<MDL 0.35	µg/L	5.0	No
1,1-Dichloroethylene	2024 01 10	<MDL 0.33	µg/L	14.0	No
Dichloromethane (Methylene Chloride)	2024 01 10	<MDL 0.35	µg/L	50.0	No
2,4-Dichlorophenol	2024 01 10	<MDL 0.15	µg/L	900.0	No
2,4-Dichlorophenoxy acetic acid (2,4-D)	2024 01 10	<MDL 0.19	µg/L	100.0	No
Diclofop-methyl	2024 01 10	<MDL 0.4	µg/L	9.0	No
Dimethoate	2024 01 10	<MDL 0.06	µg/L	20.0	No
Diquat	2024 01 10	<MDL 1.0	µg/L	70.0	No
Diuron	2024 01 10	<MDL 0.03	µg/L	150.0	No
Glyphosate	2024 01 10	<MDL 1.0	µg/L	280.0	No
Malathion	2024 01 10	<MDL 0.02	µg/L	190.0	No
2-Methyl-4chlorophenoxyacetic Acid (MCPA)	2024 01 10	<MDL 0.12	µg/L	100.0	No
Metolachlor	2024 01 10	<MDL 0.01	µg/L	50.0	No
Metribuzin	2024 01 10	<MDL 0.02	µg/L	80.0	No
Monochlorobenzene (Chlorobenzene)	2024 01 10	<MDL 0.3	µg/L	80.0	No
Paraquat	2024 01 10	<MDL 1.0	µg/L	10.0	No
PCB	2024 01 10	<MDL 0.04	µg/L	3.0	No
Pentachlorophenol	2024 01 10	<MDL 0.15	µg/L	60.0	No
Phorate	2024 01 10	<MDL 0.01	µg/L	2.0	No
Picloram	2024 01 10	<MDL 1.0	µg/L	190.0	No
Prometryne	2024 01 10	<MDL 0.03	µg/L	1.0	No
Simazine	2024 01 10	<MDL 0.01	µg/L	10.0	No
Terbufos	2024 01 10	<MDL 0.01	µg/L	1.0	No
Tetrachloroethylene	2024 01 10	<MDL 0.35	µg/L	10.0	No
2,3,4,6-Tetrachlorophenol	2024 01 10	<MDL 0.2	µg/L	100.0	No
Triallate	2024 01 10	<MDL 0.01	µg/L	230.0	No
Trichloroethylene	2024 01 10	<MDL 0.44	µg/L	5.0	No
2,4,6-Trichlorophenol	2024 01 10	<MDL0.25	µg/L	5.0	No
Trifluralin	2024 01 10	<MDL 0.02	µg/L	45.0	No
Vinyl Chloride	2024 01 10	<MDL 0.17	µg/L	1.0	No
Distribution Water					
Trihalomethane Total Annual Average Q1	2024 01 10	81	µg/L	100.0	No

	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Trihalomethane Total Annual Average Q2	2024 04 05	86	µg/L	100.0	No
Trihalomethane Total Annual Average Q3	2024 07 03	87.75	µg/L	100.0	No
Trihalomethane Total Annual Average Q4	2024 10 15	89.75	µg/L	100.0	No
HAA Total Annual Average Q1	2024 01 10	46.25	µg/L	80.0	No
HAA Total Annual Average Q2	2024 04 05	51.65	µg/L	80.0	No
HAA Total Annual Average Q3	2024 07 03	52.78	µg/L	80.0	No
HAA Total Annual Average Q4	2024 10 15	55.6	µg/L	80.0	No

MAC = Maximum Allowable Concentration as O. Reg. 169/03
MDL = Method Detection Limit

Additional Legislated Samples

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

Harmful Algal Blooms monitoring is required as a condition within the Municipal Drinking Water Licence between June and October of each reporting year at a minimum. Treated and Raw samples are collected weekly during this time period and tested for Microcystin, which is an indicator for harmful algal blooms.

Table 9. Microcystin Sample Results

Municipal Drinking Water Licence	Collected Weekly June – Oct	Total Microcystin Raw Results Range (µg/L)	Total Microcystin Treated Water Results Range (µg/L)	Treated Water Total Microcystin Limit 1.5 µg/L Exceeded
Harmful Algal Blooms Monitoring	June	<0.1 - <0.1	<0.1 - <0.1	N
	July	<0.1 - <0.1	<0.1 - <0.1	N
	August	<0.1 - <0.1	<0.1 - <0.1	N
	September	<0.1 - <0.1	<0.1 - <0.1	N
	October	<0.1 - <0.1	<0.1 - <0.1	N

Method Detection Limit is 0.1 µg/L

Table 10. Settling Tank Discharge Point Sample Results

Municipal Drinking Water Licence	Date Collected	Suspended Solids to Sanitary Sewer (mg/L)
Settling Tank Discharge Point	January	41
	February	22
	March	24
	April	35
	May	2
	June	31
	July	22
	August	44
	September	48
	October	39
	November	43
	December	18
	Average	30.7

Note: The Suspended Solids 12 month running average limit of 25 mg/L applies to effluent discharged into the natural environment. Effluent is typically discharged to the sewer system. During the reporting period, all effluent was discharged to the sewer system.

Table 11. Nitrosodimethylamine (NDMA) Sample Results

Municipal Drinking Water Licence	Sample Date (yyyy/mm/dd)	Sample Result	Unit of Measure	MAC	Exceedance
Nitrosodimethylamine (NDMA)	2024 01 10	<MDL 0.009	µg/L	0.009	
	2024 04 05	0.002	µg/L	0.009	
	2024 07 03	<MDL 0.009	µg/L	0.009	
	2024 10 16	0.002	µg/L	0.009	

MAC = Maximum Allowable Concentration as per O. Reg. 169/03
MDL = Method Detection Limit

Minor Maintenance

- Plumbing repairs
- Engineering study on piping vacuum issues
- Reject water pump #1 replacement
- Chlorine analyzer feed pump replacement
- Repair breaker reject pump #2

- Replace washroom exhaust fan
- Replace Filter 1 blower switch
- Rebuild permeate pump PS35
- Rebuild permeate pump
- Repair coagulant pump
- Replace Floc M1 motor
- VFD for spare blower
- Replace Floc M1 breaker
- Repair raw valve
- Replace compressor 1 overloads
- Intake inspection

Major Maintenance Expense (above $10,000)

Under Section 11 of O. Reg. 170/03, a description of any major expenses incurred during this reporting period to install, repair or replace required equipment must be included in the annual report. The details of the major expenses for this drinking water system are as follows:

Fenelon Falls Water Treatment Plant

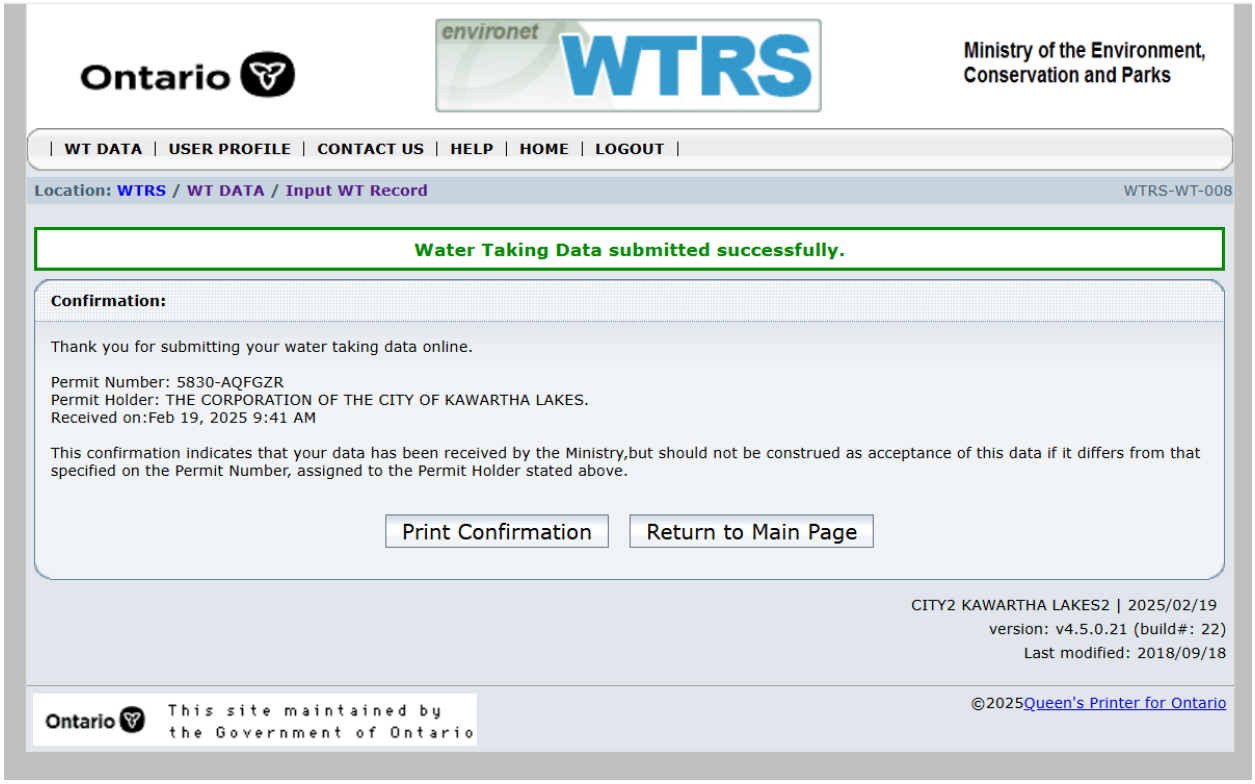
- Fenelon Falls Blower Header Replacement - $25,772
- Fenelon Falls Air Compressor Replacement - $12,350
- Filter Turbidity Analyzer and Controller Replacement - $12,615
- Fenelon Falls Highlift Pump Replacements - $221,514

Fenelon Falls Distribution System

- Various upgrades to Fenelon Falls standpipe, including ladder improvements, coatings and overflow repairs - $648,603
- Ellice St. (Wychwood Cres to Clifton St.) Reconstruction - $1,525,656

APPENDIX A

WTR Submission Confirmation



Ontario

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Ministry of the Environment, Conservation and Parks

| WT DATA | USER PROFILE | CONTACT US | HELP | HOME | LOGOUT |

Location: WTRS / WT DATA / Input WT Record WTRS-WT-008

Water Taking Data submitted successfully.

Confirmation:

Thank you for submitting your water taking data online.

Permit Number: 5830-AQFGZR
Permit Holder: THE CORPORATION OF THE CITY OF KAWARTHA LAKES.
Received on:Feb 19, 2025 9:41 AM

This confirmation indicates that your data has been received by the Ministry,but should not be construed as acceptance of this data if it differs from that specified on the Permit Number, assigned to the Permit Holder stated above.

Print Confirmation | Return to Main Page

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